EPA 2007 Ohio Regulations Summary (DCN 43047)

This summary was prepared based on publicly available information at the time of collection, and may differ from actual requirements currently in place. See the Summary of State Construction and Development Requirements Memorandum (DCN 43066 in Section 1 of the record) for documentation of the state construction site requirements that were used in modeling baseline construction costs and pollutant loads.

Ohio

Regulations Summary

In Ohio, responsibility for regulating storm water is held by both local and state authorities. Locally, municipalities, townships and counties all have authority to regulate storm water. Ohio EPA, authorized by the regulations at Chapter 6111 of the Ohio Revised Code (ORC), administers the state regulations that require storm water permits for construction sites. Ohio EPA is authorized at ORC 1511 to define standards to abate erosion and related degradation of the waters of the state. Ohio's general permit requirements for stormwater discharged from construction sties are based on the requirements in the Phase I and II of the Stormwater National Pollutant Discharge Elimination System (NPDES) permit program. These requirements established the basis of the permit requirements contained in the *2003 Ohio Environmental Protection Agency General Permit for Storm Water Discharges Associated with Construction Activity under the National Pollutant Discharge Elimination System.* Draft permits specific to portions of the Olentangy River watershed and portions of the Big Darby Creek Watershed are in development. In addition to the rules and general permit, Ohio specifies stormwater performance and design criteria and sediment and erosion control standards in the *2006 Rainwater and Land Development Manual*. Ohio also specifies stormwater control standards in the *1980 Ohio Stormwater Control Guidebook.* Regional and state rainfall variations in the Midwest are included in the *1992 Rainfall Frequency Atlas of the Midwest* and at the *National Oceanic and Atmospheric Administration Atlas 40 Precipitation Data for Ohio*.

State Erosion and Sediment Control and Stormwater Management Requirements

Erosion and sediment controls standards and post-construction stormwater control measures are specified in the *2003 Ohio Environmental Protection Agency General Permit for Storm Water Discharges Associated with Construction Activity under the National Pollutant Discharge Elimination System.*

Permit Validity
(p. 4)
Prior to March 10, 2003, only construction activities disturbing five or more acres of total land were required to obtain NPDES construction storm water permit coverage. On and after March 10, 2003, construction activities disturbing one or more acres of total land will be eligible for coverage under this permit. The threshold acreage includes the entire area disturbed in the larger common plan of development or sale.

(beginning on p. 5)
After March 10, 2003, sites whose larger common plan of development or sale have at least one, but less than five acres of land disturbance, which would otherwise require permit coverage for storm water discharges associated with construction activities, may request that the director waive their permit requirement. Entities wishing to request such a waiver must certify either that specific rainfall erosivity or total maximum daily load conditions are met.

Numeric Pollutant Removal Standard
None specified

Erosion and Sediment Control Plan
(p. 11)

A Storm Water Pollution Prevention Plan (SWP3) shall be developed for each site covered by this permit. SWP3s shall be prepared in accordance with sound engineering and/or conservation practices by a professional experienced in the design and implementation of standard erosion and sediment controls and storm water management practices addressing all phases of construction.

Stabilization Requirements
(beginning on p. 16)
Disturbed areas must be stabilized as specified in the following tables below.

Table 1: Permanent Stabilization

Area requiring permanent stabilization	Time frame to apply erosion controls
Any areas that will lie dormant for one year or more	Within seven days of the most recent disturbance
Any areas within 50 feet of a stream and at final grade	Within two days of reaching final grade
Any other areas at final grade	Within seven days of reaching final grade within that area

Table 2: Temporary Stabilization

Area requiring temporary stabilization	Time frame to apply erosion controls
Any disturbed areas within 50 feet of a stream and not at final grade	Within two days of the most recent disturbance if the area will remain idle for more than 21 days
For all construction activities, any disturbed areas that will be dormant for more than 21 days but less than one year, and not within 50 feet of a stream	Within seven days of the most recent disturbance within the area For residential subdivisions, disturbed areas must be stabilized at least seven days prior to transfer of permit coverage for the individual lot(s).
Disturbed areas that will be idle over winter	Prior to the onset of winter weather

Where vegetative stabilization techniques may cause structural instability or are otherwise unobtainable, alternative stabilization techniques must be employed.

(p. 33)
The definition of “Final stabilization” includes: all soil disturbing activities at the site are complete and a uniform perennial vegetative cover (e.g., evenly distributed, without large bare areas) with a density of at least 70 percent cover for the area has been established on all unpaved areas and areas not covered by permanent structures or equivalent stabilization measures (such as the use of mulches, rip-rap, gabions or geotextiles) have been employed.

Sediment Settling Pond Requirements
(beginning on p. 16)
For common drainage locations that serve an area with 10 or more acres disturbed at one time, a temporary (or permanent) sediment settling pond must be provided until final stabilization of the

site. It is recommended for drainage locations serving less than 10 acres, smaller sediment basins and/or sediment traps should be used.

The sediment settling pond shall be sized to provide at least 67 cubic yards of storage per acre of total contributing drainage area. When determining the total contributing drainage area, off-site areas and areas which remain undisturbed by construction activity must be included unless runoff from these areas is diverted away from the sediment settling pond and is not co-mingled with sediment-laden runoff.

Silt Fence Requirements
(p. 19)
Sheet flow runoff from denuded areas shall be intercepted by silt fence or diversions to protect adjacent properties and water resources from sediment transported via sheet flow. The relationship between the maximum drainage area to silt fence for a particular slope range is shown in the table below.

Maximum drainage area (in acres) to 100 linear feet of silt fence	Range of slope for a particular drainage area (in percent)
0.5	< 2%
0.25	≥ 2% but < 20%
0.125	≥ 20% but < 50%

Post Construction Requirements
(p. 21)
For all large construction activities (involving the disturbance of five or more acres of land or will disturb less than five acres, but is a part of a larger common plan of development or sale which will disturb five or more acres of land), the post construction BMP(s) chosen must be able to detain storm water runoff for protection of the stream channels, stream erosion control, and improved water quality. Structural (designed) post-construction storm water treatment practices shall be incorporated into the permanent drainage system for the site. The BMP(s) chosen must be sized to treat the water quality volume (WQv) and ensure compliance with Ohio's Water Quality Standards in OAC Chapter 3745-1. The WQv shall be equivalent to the volume of runoff from a 0.75-inch rainfall. An additional volume equal to 20 percent of the WQv shall be incorporated into the BMP for sediment storage and/or reduced infiltration capacity.

Monitoring Requirements
(p. 25)
At a minimum, procedures in an SWP3 shall provide that all controls on the site are inspected at least once every seven calendar days and within 24 hours after any storm event greater than one-half inch of rain per 24 hour period.

Erosion and sediment controls standards and post-construction stormwater control measures are specified in the *2006 Ohio Environmental Protection Agency General Permit for Storm Water Discharges Associated with Construction Activity within in the Big Darby Creek Watershed under the National Pollutant Discharge Elimination System.*

Permit Validity
(p. 3)
Construction activities disturbing one or more acres of total land that are located fully or partially within the permit area will be eligible for coverage under this permit. The threshold acreage includes the entire area disturbed in the larger common plan of development or sale.

Numeric Pollutant Removal Standard
None specified

Erosion and Sediment Control Plan
(p. 9)
Same as general permit.

Riparian Setback Requirements
(beginning on p. 15)
The total setback width shall be the streamway width centered over the meander pattern of the stream plus an additional 100 feet from the edge of the streamway per side. The stream setback corridor consists of up to 3 zones. Zone 1 extends from 0 to 25 feet from the stream edge. Zone 2 extends from 25 to 100 feet from the stream edge, and Zone 3 extends from 100 feet to the outer edge of the setback corridor. Intrusion into these zones will require the mitigation practices as specified in this permit.

Sediment Settling Pond Requirements
(beginning on p. 24)
For common drainage locations that serve an area with 5 or more acres disturbed at one time, a temporary (or permanent) sediment settling pond shall be provided until final stabilization of the site. For drainage locations serving less than 5 acres, smaller sediment basins and/or sediment traps should be used. The sediment settling pond shall be sized to provide a minimum sediment storage volume of 134 cubic yards of effective sediment storage per acre of drainage and maintain a target discharge performance standard of 45 mg/l Total Suspended Solids (TSS) up to a 0.75-inch rainfall event within a 24 hour period. When determining the total contributing drainage area, off-site areas and areas which remain undisturbed by construction activity must be included unless runoff from these areas is diverted away from the sediment settling pond and is not co-mingled with sediment-laden runoff.

Settling ponds will be sampled according to the follow standards, among others:
The applicable rainfall event for sampling to occur shall be a rainfall event of 0.25-inch to a 0.75-inch rainfall event to occur within a 24 hour period. Grab sampling shall be initiated at a site within 14 days, or the first applicable rainfall event thereafter, once upslope disturbance of each sampling location is initiated and shall continue on a quarterly basis. Quarterly periods shall be represented as January - March, April - June, July - September and October - December. Sampling results shall be retained on site and available for inspection. If any sample is greater than the performance standard of 45 mg/l TSS, the permittee shall modify the SWP3 and install/implement new control practice(s) within 10 days to ensure the TSS performance standard is maintained. Within 3 days of improvement(s), or the first applicable rainfall event thereafter,

the permittee shall resample to ensure SWP3 modifications maintain the TSS performance standard target.

Stabilization Requirements
(p. 22) Same as general permit.

Silt Fence Requirements
(p. 26) For sites less than 5 acres silt fence may be used.

Silt Fence Maximum Drainage Area Based on Slope

Maximum drainage area (in acres) to 100 linear feet of silt fence	Range of slope for a particular drainage area (in percent)
0.5	< 2%
0.25	≥ 2% but < 20%
0.125	≥ 20% but < 50%

Post Construction Requirements
(p. 28) Same as general permit.

Monitoring Requirements
(p. 33) Same as general permit.

Erosion and sediment controls standards and post-construction stormwater control measures are specified in the Draft *Ohio Environmental Protection Agency General Permit for Storm Water Discharges Associated with Construction Activity within Portions of the Olentangy Watershed under the National Pollutant Discharge Elimination System.*

Permit Validity
(p. 3) Same as Big Darby permit.

Numeric Pollutant Removal Standard
None specified

Erosion and Sediment Control Plan
(p. 9) Same as general permit.

Riparian Setback Requirements
(beginning on p. 15) Same as Big Darby permit.

Stabilization Requirements
(p. 17) Same as general permit.

Sediment Settling Pond Requirements
(beginning on p. 19)
Same as Big Darby permit.

Stabilization Requirements
(p. 22)
Same as general permit.

Silt Fence Requirements
(p. 21)
Same as Big Darby permit.

Post Construction Requirements
(p. 23)
Same as general permit.

Monitoring Requirements
(p. 27) Same as general permit.

Standards and specifications for stormwater practices implemented during land development are specified in the *2006 Rainwater and Land Development Manual Ohio's Standards for Stormwater Management, Land Development and Urban Stream Protection.*

Sediment Basin Requirements
(beginning Chapter 6, p. 2)
Sediment basins guidelines include bring limited to areas in which the drainage area is 100 ac. or less. The volume of the dewatering zone shall be a minimum of 1800 cubic feet per acre of drainage (67 yd^3/acre) or the minimum stated in the current NPDES construction general permit. The volume of the sediment storage zone shall be calculated by one of the following methods:
Method 1: The volume of the sediment storage zone shall be 1000 cubic feet (37 cubic yards) per disturbed acre within the watershed of the basin. OR
Method 2: The volume of the sediment storage zone shall be the volume necessary to store the sediment as calculated with RUSLE or a similar generally accepted erosion prediction model. The minimum dewatering time for sediment basins is 48 hours. The maximum dewatering time should not exceed 7 days.

Sediment Trap Requirements
(beginning Chapter 6, p. 21)
Sediment traps are used, among other criteria, below disturbed areas where the total contributing drainage area is 5 acres or less. If the contributing drainage area is greater than 5 acres, the use of a sediment basin is recommended. The sediment storage volume may be in the form of a permanent pool or wet storage to provide a stable-settling medium, while the dewatered volume shall be in the form of a draw down or dry storage of at least 67 cubic yards per acre which will provide extended settling time during less frequent, larger storm events. The volume of the dewatering zone shall be a minimum of 1800 cubic feet per acre of drainage (67 yd^3/acre) or the minimum stated in the current NPDES construction general permit. The total volume of the dewatering zone shall be measured from the base of the stone outlet structure to the crest of the stone outlet structure. The volume of the sediment storage zone shall be calculated by one of the following methods:

Method 1: The volume of the sediment storage zone shall be 1000 cu. ft. per disturbed acre within the watershed of the basin; OR
Method 2: The volume of the sediment storage zone shall be the volume necessary to store the sediment yield as calculated with RUSLE or a similar generally accepted erosion prediction model.

Sediment and Erosion Control Requirements
(beginning Appendix 2, p. 3)
Ohio's general permit is based on the federal NPDES general permit stormwater construction. Sediment and erosion control requirements include:

- Stabilization of disturbed areas must be initiated within 7 days of reaching final grade.
- Areas within 50 feet of a stream (including intermittent streams) must be stabilized within 2 days of the most recent disturbance.
- Temporary stabilization of disturbed areas that will be reworked, but not for 21 days or more from the date they were last disturbed, must be initiated within 7 days of last disturbance.
- Sediment ponds must be implemented for all common drainage areas with 10 or more acres disturbed at one time and whenever the capacity of sediment barriers is exceeded.
- Sediment ponds must provide a minimum storage volume of 67 cubic yards per acre of total contributing drainage area.
- Silt fence is only allowed to be used to control sheet flow runoff from limited drainage areas. The permissible drainage area per 100 linear feet of silt fence is dependent on the slope but is no more than 0.5 acre. Silt fence can not be used to control drainage areas with a slope of greater than 50%.
- No more than 10 acres may drain to a diversion.

Stabilization Requirements
Chapter 7 in this manual specifies design and performance criteria for various post-construction stabilization measures.

Runoff Control Requirements
Chapters 4 and 5 in this manual specify design and performance criteria for individual permanent and temporary BMPs to manage stormwater runoff.

Wetland Setback Requirements
(Chapter 2, p. 18)
For most situations, Ohio EPA has concurred with the following guidelines.

- A minimum of 120 feet surrounding all Ohio EPA Category 3 wetlands, or current equivalent Ohio EPA classification.
- A minimum of 75 feet surrounding all Ohio EPA Category 2 wetlands, or current equivalent Ohio EPA classification.
- A minimum of 25 feet surrounding all Ohio EPA Category 1 wetlands or current equivalent Ohio EPA classification.

Post Construction Requirement
(beginning Appendix 2, p. 5)
Ohio's general permit is based on the federal NPDES general permit stormwater construction. Stormwater management requirements include:

- Structural post-construction BMPs are required for all projects that disturb 5 or more acres in the larger common plan of development or sale. Structural post-construction

BMPs must be designed to capture and treat the Water Quality Volume (VWQ) plus an additional 20% of the VWQ.

- Redevelopment projects are required to either reduce the existing, pre-construction impervious area of the site by 20%, or capture and treat 20% of VWQ.
- Qualified personnel (provided by the developer) must inspect all BMPs at least once every 7 days and within 24 hours of a 0.5" or greater rainfall within any 24-hour period and determine if the SWP3 has been properly implemented.

Receiving Waters Requirements
Additional standards are in development.

Stormwater control standards are specified in the *1980 Ohio Stormwater Control Guidebook.*

This document includes general design criteria for a variety of stormwater control measures.

Stormwater Control Criteria
(p. 47)
Increased peak rates and volumes of runoff shall be controlled such that:

a) The peak rate of runoff from the critical storm and all more frequent storms occurring on the development area does not exceed the peak rate of runoff from a one year frequency storm (of 24 hours duration) occurring on the same area under predevelopment conditions.
b) Storms of less frequent occurrence than the critical storm, up to the one hundred year storm, have peak runoff rates no greater than the peak runoff rates from equivalent size storms under predevelopment conditions.

The critical storm for a specific development area is determined as follows:

a) Determine by appropriate hydrologic methods the total volume of runoff from a one-year frequency, 24-hour storm occurring on the development area before and after development.
b) From the volumes determines in (a), determine the percentage increase in volume of runoff due to development, and using this percentage, select the 24-hour critical storm from this table.

If the percentage of increase in volume of runoff is:

Equal or greater than	And less than	The critical storm for peak rate control will be
--	10	1 year
10	20	2 year
20	50	5 year
50	100	10 year
100	250	25 year
250	500	50 year
500	--	100 year

***No other standards of interest are specified in this manual.**

Regional rainfall variations in the Midwest are included in the *1992 Rainfall Frequency Atlas of the Midwest.*

Regional Variations

Maps showing the spatial distribution of 1-, 2-, 3-, 6-, 12-, 24-, 48-, 72-, hour, 5-, and 10-day rainfall across the Midwest are included in this document and are available at http://www.sws.uiuc.edu/pubdoc/B/ISWSB-71.pdf.

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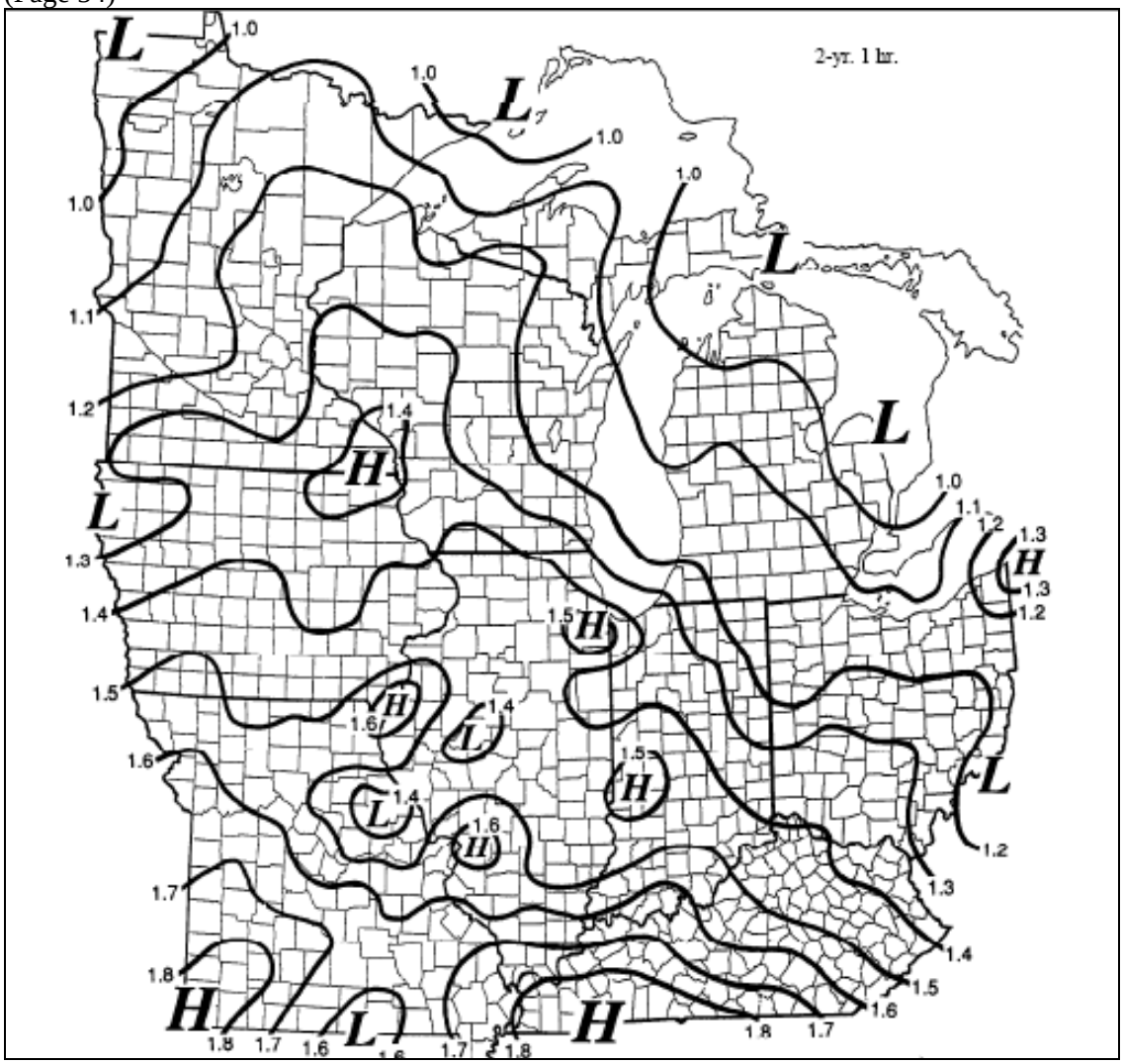

Figure 1. Spatial distribution of 1-hour rainfall (inches)

Figure 2 shows climatic sections that correspond to the Table 8. Sectional Mean Frequency Distributions for Storm Periods of 5 Minutes to 10 Days and Recurrence Intervals of 2 Months to 100 Years in Ohio (Page 135-138).

Figure 2. Climatic Sections for Ohio (Page 4)

Table 8. Sectional Mean Frequency Distributions for Storm Periods of 5 Minutes to 10 Days and Recurrence Intervals of 2 Months to 100 Years in Ohio

Sectional code (see figure 1 on page 4)

01 – Northwest	*06 - Central Hills*
02 - North Central	*07 - Northeast Hills*
03 – Northeast	*08 - Southwest*
04 - West Central	*09 - South Central*
05 – Central	*10 - Southeast*

Rainfall (inches) for given recurrence interval

Section	Duration	2-month	3-month	4-month	6-month	9-month	1-year	2-year	5-year	10-year	25-year	50-year	100-year
01	10-day	1.69	2.04	2.35	2.76	3.17	3.45	4.22	5.17	5.89	6.83	7.56	8.31
01	5-day	1.42	1.70	1.93	2.23	2.57	2.79	3.43	4.29	4.92	5.81	6.51	7.26
01	72-hr	1.27	1.49	1.69	1.96	2.25	2.45	3.05	3.77	4.33	5.17	5.89	6.71
01	48-hr	1.17	1.36	1.52	1.76	2.02	2.20	2.74	3.43	3.96	4.74	5.40	6.14
01	24-hr	1.12	1.30	1.42	1.64	1.87	2.03	2.52	3.18	3.70	4.43	5.05	5.73
01	18-hr	1.05	1.22	1.34	1.55	1.76	1.91	2.37	2.99	3.48	4.16	4.75	5.39
01	12-hr	0.97	1.13	1.24	1.43	1.63	1.77	2.19	2.77	3.22	3.85	4.39	4.99
01	6-hr	0.84	0.97	1.06	1.23	1.40	1.52	1.89	2.38	2.78	3.32	3.79	4.30
01	3-hr	0.71	0.83	0.91	1.05	1.20	1.30	1.61	2.04	2.37	2.84	3.23	3.67
01	2-hr	0.65	0.76	0.83	0.96	1.09	1.18	1.46	1.84	2.15	2.57	2.93	3.32
01	1-hr	0.52	0.61	0.66	0.77	0.87	0.95	1.18	1.49	1.74	2.08	2.37	2.69
01	30-min	0.41	0.48	0.52	0.61	0.69	0.75	0.93	1.18	1.37	1.64	1.87	2.12
01	15-min	0.30	0.35	0.38	0.45	0.51	0.55	0.68	0.86	1.00	1.20	1.36	1.55
01	10-min	0.24	0.28	0.30	0.35	0.40	0.43	0.53	0.67	0.78	0.93	1.06	1.20
01	5-min	0.13	0.15	0.17	0.19	0.22	0.24	0.30	0.38	0.44	0.53	0.61	0.69
02	10-day	1.63	1.96	2.26	2.66	3.05	3.32	4.19	5.31	6.19	7.40	8.35	9.35
02	5-day	1.35	1.61	1.82	2.11	2.43	2.64	3.33	4.32	5.10	6.21	7.14	8.14
02	72-hr	1.22	1.43	1.61	1.87	2.15	2.34	2.93	3.69	4.34	5.39	6.33	7.39
02	48-hr	1.14	1.33	1.48	1.72	1.98	2.15	2.67	3.37	3.94	4.86	5.70	6.68
02	24-hr	1.09	1.27	1.39	1.60	1.82	1.98	2.44	3.06	3.55	4.35	5.08	5.92
02	18-hr	1.02	1.19	1.30	1.51	1.71	1.86	2.29	2.88	3.34	4.09	4.78	5.56

Ohio rainfall data is available at the *National Oceanic and Atmospheric Administration Atlas 40 Precipitation Data for Ohio*.

Regional Variations

The following web site provides current information about the precipitation patterns across Ohio: http://hdsc.nws.noaa.gov/hdsc/pfds/orb/oh_pfds.html.